

**Texas Institute for Applied Environmental Research: Assessment of Water Quality and Watershed Based Planning for Nolan Creek/South Nolan Creek (58-13-30061)**  
**Progress Report:** FY 2015 Quarter 3 covering March 1, 2015 – May 31, 2015 (submitted June 11, 2015)

TASK	DELIVERABLE	DUE DATE	DATE SUBMITTED
<b>Note: Due Dates revised to reflect requested 6-month extension of the project through February 28, 2016 as noted in revised Scope of Work. Additions or changes related to this extension are highlighted in yellow.</b>			
<b>Contract Executed September 18, 2012</b>			
1.2	Quarterly Progress Report FY13 Q-1 No. 1 Quarterly Progress Report FY13 Q-2 No. 2 Quarterly Progress Report FY13 Q-3 No. 3 Quarterly Progress Report FY13 Q-4 No. 4 Quarterly Progress Report FY14 Q-1 No. 5 Quarterly Progress Report FY14 Q-2 No. 6 Quarterly Progress Report FY14 Q-3 No. 7 Quarterly Progress Report FY14 Q-4 No. 8 Quarterly Progress Report FY15 Q-1 No. 9 Quarterly Progress Report FY15 Q-2 No. 10 Quarterly Progress Report FY15 Q-3 No. 11 Quarterly Progress Report FY15 Q-4 No. 12 Quarterly Progress Report FY16 Q-1 No. 13	Dec. 15, 2012 Mar. 15, 2013 Jun. 15, 2013 Sep. 15, 2013 Dec. 15, 2013 Mar. 15, 2014 Jun. 15, 2014 Sep. 15, 2014 Dec. 15, 2014 Mar. 15, 2015 Jun. 15, 2015 Sep. 15, 2015 Dec. 15, 2015	Dec. 14, 2012 Mar. 15, 2013 Jun. 14, 2013 Sep. 13, 2013 Dec. 13, 2013 Mar. 18, 2014 Jun. 11, 2014 Sep. 12, 2014 Dec. 15, 2015 Mar. 13, 2015
1.3	Contract Communication Post-Award Meeting Post Award Meeting Minutes  Quarterly Communication Minutes	Oct., 18, 2012 Dec. 15, 2012  Quarterly with QPR	Held Sep. 21, 2012 at TCEQ Offices in Austin Submitted with Dec. 2012 QPR  May 5, 2015 TIAER and TCEQ PM had a conference call. A summary of items discussed at this meeting is also included in Attachment #1.
1.4	Annual Report Article FY13 Annual Report Article FY14 Annual Report Article FY15	Upon Request Upon Request Upon Request	
1.5	Project Coordination Meeting with EPA	Sep 30, 2014	
2.1	QAPP Planning Meeting with City of Killeen	Oct. 18, 2012	Feb. 11, 2013 TIAER met with CoK in Killeen to discuss the QAPP and Monitoring plan drafts. Task Completed.

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2.2	Draft QAPP for Monitoring	Nov. 16, 2013	Feb. 22, 2013 - A draft Monitoring QAPP was sent to the TCEQ Project Manager for review. Received comments Mar. 28 and responded with final revision dated Apr. 17, 2013 and QAPP approved May 2, 2013. Task Completed.
2.3	Draft QAPP for Modeling	Nov. 16, 2013	Feb. 22, 2013 – A draft Modeling QAPP was sent to the TCEQ Project Manager for review. Received comment Apr. 4 and responded with final revision dated May 13, 2013 approved May 16, 2013. Task Completed.
2.4	QAPP Updates FY14  FY15	No less that 60 days prior to end of effective period	FY14 Annual revision to Monitoring QAPP approved Mar. 6, 2014.  FY14 Annual certification for Modeling QAPP approved Feb. 12, 2014.  FY15 Annual certification for Monitoring and Modeling QAPPs approved Feb. 6, 2015.
2.5	QAPP Amendments Draft Note: A QAPP Expedited Amendment will be submitted for both the modeling and monitoring QAPP, which addresses the 6-month project extension once the contract has been amended between TCEQ and TIAER.  QAPP Amendments Final	As needed  As needed	No activity this quarter
2.6	Data Submittals (quarterly data submittals requested by TCEQ PM)  Note: Data collection will be completed in June 2015 even with the project extension, so the last data submittal will occur in August 2015 as originally scheduled.	Mar. 15, 2013 Jun. 15, 2013 Sep. 15, 2013 Dec. 15, 2013 Mar. 15, 2014 Jun. 15, 2014 Sep. 15, 2014 Dec. 15, 2014 Mar. 15, 2015 Jun. 15, 2015 Aug. 15, 2015	Data collection started in May 2013 with approval of monitoring QAPP. First data submittal sent Sep. 13, 2013. Second submittal sent Dec. 16, 2013 Third submittal sent Mar. 12, 2014 Forth submittal Jun. 13, 2014 Fifth submittal Sep. 10, 2014 Sixth submittal Dec. 11, 2014 Seventh submittal Mar. 9, 2015

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3.1	Draft PPP	Dec. 15, 2012	Feb. 25, 2013 – Submitted to TCEQ PM Mar. 4, 2013 – PPP approved by TCEQ PM.
	Final PPP	Mar. 15, 2013	Mar. 5, 2013 – Distributed final PPP in PDF form to project partners and TCEQ PM.
3.2 – 3.5	Stakeholder Group Development, Activities, Meetings and Project Dissemination	Bi-annually	Last public stakeholder meeting held Sep. 25, 2014.
3.6	Draft Building Partnerships – Element E, Part A Report	Mar. 15, 2013	Mar. 4, 2013 – TCEQ PM gave final approval of PPP and approved document was sent in PDF form to project partners. To be updated as needed.
	Final Building Partner ships – Element E, Part A Report	<del>Aug. 15, 2015</del> Jan. 29, 2016	
4.1-4.2	Inventory of existing data and GIS representation for watershed in shapefile or ArcGIS grid format	Revised due date Dec. 5, 2014	Draft report completed and delivered to TCEQ Dec. 5, 2014 with maps of GIS data for the watershed.
4.3	Draft Watershed Characterization Report	Revised due date Dec. 5, 2014	Draft completed and delivered to TCEQ Dec. 5, 2014. Comments received from TCEQ Jan. 12, 2015.  Extension requested for final report. Revisions submitted 28May2015 to TCEQ with response to comments.
	Final Watershed Characterization Report	<del>Revised due date</del> <del>Feb. 20, 2015</del> <del>Apr. 15, 2015</del> May 28, 2015	
5.2	Draft Water Quality Monitoring Plan	Nov. 16, 2012	Reconnaissance and planning meeting held between TIAER and CoK Jan. 18, 2013
	Final Water Quality Monitoring Plan	Dec. 15, 2012	Submitted to TCEQ PM for review Feb. 22, 2013 and approved Mar. 8, 2013. Task Completed.
5.3	Source Survey Technical Report	Dec. 15, 2014	Draft completed and delivered to TCEQ Dec. 15, 2014.  Comments received from TCEQ Jan. 28, 2015. Revisions and response to comments submitted to TCEQ May 28, 2015.
5.5	Draft Watershed Characterization – Phase 2 Report	<del>Revised due date</del> <del>Apr. 15, 2015</del> Aug. 31, 2015	
	Final Watershed Characterization – Phase 2 Report	<del>Jun. 15, 2015</del>	

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TASK	DELIVERABLE	DUE DATE	DATE SUBMITTED
		Nov.30, 2015	
6.2	Watershed maps that identify potential cause and sources of water quality problems	Jun. 15, 2015 Jul. 31, 2015	
6.5	Draft Watershed Characterization Phase 3 Report with Loadings  Final Watershed Characterization Phase 3 Report with Loadings	June 15, 2015 Jul. 31, 2015  Jul. 15, 2015 Nov. 30, 2015	
7.1	Define Education Goals	Mar. 15, 2013	Strategies for reaching targeted audience outlined in PPP
7.2	Identify Target Audience	Mar. 15, 2013	Target audience identified in PPP
7.3	Design Implementation Measures	Mar. 15, 2013	Identified in PPP
7.4	Evaluate Education and Outreach Program FY13 FY14 FY15	Sep. 15, 2013 Sep. 15, 2014 Sep. 15, 2015	
7.5	Draft Information & Education Plan Report  Final Information & Education Plan Report	Jun. 15, 2015 Oct. 30, 2015 Jul. 15, 2015 Nov. 30, 2015	
8.1- 8.2	Draft Project Report  Final Project Report	Jul. 15, 2015 Dec. 18, 2015 Aug. 15, 2015 Feb. 28, 2015	

### GENERAL COMMENTS

TASK	COMMENTS/ACTIVITIES
<b>1. Project Administration</b>	Project administrative duties occurred as needed including emails, quarterly communication, development of quarterly progress reports and reimbursement requests. Received email from TCEQ project manager March 23, 2015 that the 6-month, no-cost extension of the project had been approved by EPA and the contract amendment is in progress. Invoicing issues for reimbursement of project expenses are an on-going issue that is being worked out between TCEQ and Sponsored Research Service (SRS) with the Texas A&M University System, which now handles TIAER invoicing. The current invoice being reviewed by TCEQ is for June-August 2014.
<b>2. Quality Assurance</b>	No changes needed to QAPP. Seventh quarterly data submittal to TCEQ occurred Mar. 9, 2015
<b>3. Building Partnerships</b>	No activity this quarter.
<b>4. Watershed Characterization – Data Inventory</b>	Worked on response to comments and revisions to this report. Revised version sent to TCEQ May 28, 2015.
<b>5. Watershed Characterization – Data Collection and Analysis</b>	<p>Routine monitoring was conducted monthly throughout the quarter at all 11 stations and is summarized in Table 1 at the end of the General Comments Section. Storm monitoring was conducted twice during the quarter, once in March and again in April at the four storm sampling stations (see Table 2). Storm monitoring was conducted twice this quarter to obtain a total of nine storm events for the project and also allow adequate time for analysis of the data for upcoming reports. Corrective Action Reports and Corrective Action Plans issued for project samples are presented in Table 3 with the Corrective Action Status as Table 4. The last routine monitoring event is scheduled for June 2015.</p> <p>Worked on response to comments and revisions to Source Survey Technical Report (Task 5.3). These were submitted to TCEQ May 28, 2015.</p>
<b>6. Identification of Causes and Sources of Pollution and Estimation of Pollutant Loads</b>	Revisions to SELECT conducted this quarter based on comments from a preliminary review conducted by the CoK in February 2015. Worked initiated on drafting report with SELECT results.
<b>7. Information and Education Component</b>	No activity this quarter.
<b>8. Project Report</b>	No activity to report

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**Table 1. Routine Monthly Monitoring for March 1, 2015 through May 31, 2015. Number of samples and comments, as applicable.**

Collection Date	TCEQ Station ID	Sonde	Nutrients & TSS	<i>E. coli</i>	Flow	Comments
04Mar2015	11915	1	1	1	1	
04Mar2015	18828	1	1	1	1	
04Mar2015	21436	1	1	1	1	
04Mar2015	18827	1	1	1	1	
04Mar2015	21437	1	1	1	1	
04Mar2015	11913	1	1	1	1	
04Mar2015	11911	1	1	1	1	
04Mar2015	11910	1	1	1	1	
04Mar2015	11908	1	1	1	1	
04Mar2015	11905	1	1	1	1	
04Mar2015	14237	1	1	1	1	
22Apr2015	11915	1	1	1	1	
22Apr2015	18828	1	1	1	1	
22Apr2015	21436	1	1	1	1	
22Apr2015	18827	1	1	1	1	
22Apr2015	21437	1	1	1	1	
22Apr2015	11913	1	1	1	1	
22Apr2015	11911	1	1	1	1	
22Apr2015	11910	1	1	1	1	
22Apr2015	11908	1	1	1	1	
22Apr2015	11905	1	1	1	1	
22Apr2015	14237	1	1	1	1	
21May2015	11915	1	1	1	1	
21May2015	18828	1	1	1	1	
21May2015	21436	1	1	1	1	
21May2015	18827	1	1	1	1	
21May2015	21437	1	1	1	1	
21May2015	11913	1	1	1	1	
21May2015	11911	1	1	1	1	
21May2015	11910	1	1	1	1	
21May2015	11908	1	1	1	1	
21May2015	11905	1	1	1	1	
21May2015	14237	1	1	1	1	

Sonde data includes dissolved oxygen, specific conductance, pH, and water temperature.

Nutrients include nitrite-nitrogen + nitrate-nitrogen (NO<sub>2</sub>-N+NO<sub>3</sub>-N, dissolved), total Kjeldahl nitrogen (TKN), orthophosphate-phosphorus (OPO<sub>4</sub>-P, dissolved), and total phosphorus (TP).

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**Table 2. Storm Monitoring for March 1, 2015 through May 31, 2015. Number of samples and comments, as applicable. Nutrient and TSS, unless noted, represent a flow-weighted sample collected with an automated sampler. Samples for *E. coli* are grab samples collected during elevated flow conditions.**

Collection Date	TCEQ Station ID	Nutrients & TSS	<i>E. coli</i>	Flow	Comments
21Mar2015	18828	1	1	1	
21Mar2015	11913	1	1	1	
21Mar2015	11910	1	1	Estimate only	*See comment below
21Mar2015	11905	1	1	Estimate only	*See comment below
19Apr2015	18828	1	1	1	
19Apr2015	11913	1	1	1	
19Apr2015	11910	1	1	1	
19Apr2015	11905	1	1	1	

Nutrients include nitrite-nitrogen + nitrate-nitrogen (NO<sub>2</sub>-N+NO<sub>3</sub>-N, dissolved), total Kjeldahl nitrogen (TKN), orthophosphate-phosphorus (OPO<sub>4</sub>-P, dissolved), and total phosphorus (TP).

\*Water level too high for safe wading measurements and too turbid for use of Doppler boat. Flow estimated based on depth and cross-section information and estimates of velocity.

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**Corrective Action Reports**

The below listing includes CARs where data quality was potentially impacted and required notification and review by the TIAER PM. The deficiencies were not such to require immediate reporting to TCEQ, and are, thus, reported with the QPR.

**Table 3**  
**Summary of new Corrective Action Reports**

<b>TIAER CAR # &amp; CAP#</b>	<b>Sample Collection Date</b>	<b>Report Initiation Date</b>	<b>TIAER Sample Number(s)</b>	<b>Site(s)</b>	<b>Description of Deficiency</b>	<b>Cause(s)</b>	<b>Resulting or Suggested Action</b>	<b>Corrective Action for Specific Incident</b>	<b>Corrective Actions to be Taken</b>	<b>Proposed Completion Date</b>	<b>Date Closed</b>
15-0041 & CAP #11	18Apr2015	21Apr2015	1000094333	11910	Matrix spike recovery 63% for NO <sub>2</sub> -N, NO <sub>3</sub> -N; MS=2.96 & sample = 2.34 mg/L; spike 1 mg/L	High sample concentration requiring dilution	None	Flag data with “SR” for data submittal	Review data for acceptability for project objectives.	12Jun2015	10Jun2015
15-0073 & CAP #12	21May2015	02Jun2015	1000094544 1000094545 1000094546 1000094547 1000094548 1000094549 1000094550 1000094551 1000094552 1000094553 1000094554 1000094555	14237 11905 11908 11910 11911 11911 11913 21437 18827 21436 18828 11915	LCS recovery less than 80% for batch	Some powdered standard may have spilled or blown off filter	Analyst reminded to use more caution when handling powdered standard	Other QC reviewed; LCSD passed	Data reviewed and considered reasonable for submittal; comment to be added with submittal	12Jun2015	

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**Table 4**  
**Corrective Action Status Table**

<b>Corrective Action # (CARs)</b>	<b>Date Issued (CAP)</b>	<b>Description of Deficiency</b>	<b>Action Taken</b>	<b>Date Closed</b>
1 (CARs 13-0092 & 13-0105)	06Sep2013	Matrix spike beyond recovery limits (NO <sub>2</sub> -N+NO <sub>3</sub> -N & TKN)	Associated sample data to be flagged with “SR” in data submittal. No specific corrective action identified. Lab will continue to monitor for trends.	01Oct2013
2 (CAR 13-0097)	06Sep2013	Quanti-Tray comparator for <i>E. coli</i> analysis was used past expiration	Expired comparator was checked against new comparator. Added comparator expiration date to monthly maintenance check schedule.	10Jan2014
3 (CAR 13-0101)	06Sep2013	Field filtration of NO <sub>2</sub> -N+NO <sub>3</sub> -N and PO <sub>4</sub> -P was unable to occur.	Field crew directed to use alternative parameter codes as outlined in the QAPP. Field personnel reminded to verify that loaded equipment matches the items on the equipment check list, which is located in the Nolan field notebooks.	03Sep2013
4 (CARs 13-0137 & 13-0138)	12Dec2013	Matrix spike beyond recovery limits (NO <sub>2</sub> -N+NO <sub>3</sub> -N & PO <sub>4</sub> -P)	Associated sample data to be flagged with “SR” in data submittal. No specific corrective action identified. Lab will continue to monitor for trends.	13Jan2014
5 (CARs 14-0022, 14-0031 & 14-0038)	05Jun2014	Matrix spike beyond recovery limits (PO <sub>4</sub> -P, NO <sub>2</sub> -N+NO <sub>3</sub> -N & TKN)	Associated sample data to be flagged with “SR” in data submittal. No specific corrective action identified. Lab will continue to monitor for trends.	09Jun2014
6 (CAR 14-0031)	05Jun2014	Sonde incorrectly calibrated for specific conductance	Field personnel instructed to review calibration procedures prior to next monitoring event. Data omission to be noted with data submittal.	27May2014
7 (CARs 14-0045, 14-0046 & 14-0047)	05Sep2014	RPD for field split greater than 30% for TKN	Associated sample data flagged with “SP” in data submittal. Historical data reviewed in comparison to sample values to determine acceptability for project objectives.	12Jun2014
8 (CARs 14-0089 & 14-	09Dec2014	Matrix spike beyond recovery limits (NO <sub>2</sub> -N+NO <sub>3</sub> -N)	Associated sample data flagged with “SR” in data submittal.	09Dec2014

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<b>Corrective Action # (CARs)</b>	<b>Date Issued (CAP)</b>	<b>Description of Deficiency</b>	<b>Action Taken</b>	<b>Date Closed</b>
0100)			Historical data reviewed in comparison to sample values to determine acceptability for project objectives.	
9 (CAR 14-0101)	09Dec2014	RPD for field split greater than 30% for TKN	Associated sample data flagged with “SP” in data submittal. Historical data reviewed in comparison to sample values to determine acceptability for project objectives.	09Dec2014
10 (CAR 15-0008)	10Mar2015	Matrix spike beyond recovery limits (NO <sub>2</sub> -N+NO <sub>3</sub> -N)	Associated sample data flagged with “SR” in data submittal. Historical data reviewed in comparison to sample values to determine acceptability for project objectives.	25Feb2015
11 (CAR 15-0018)	10Mar2015	RPD for field split greater than 30% for TKN	Associated sample data flagged with “SP” in data submittal. Historical data reviewed in comparison to sample values to determine acceptability for project objectives.	09Mar2015
15-0041& CAP #11	08Jun2015	Matrix spike beyond recovery limits for NO <sub>2</sub> -N_NO <sub>3</sub> -N	Flag data with “SR” for data submittal. Historical data reviewed in comparison to sample values to determine acceptability for project objectives.	10Jun2015
15-0073 & CAP #12	08Jun2015	LCS recovery less than 80% for batch	Other QC reviewed and passed. Historical data reviewed in comparison to sample values to determine acceptability for project objectives.	

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**Attachment #1**  
**Minutes from Quarterly Project Communication**

**Date:** Tuesday May 5, 2015

**Time:** 2 – 2:20pm

**Participants:** Anne McFarland - TIAER  
Leah Taylor - TIAER  
Megan Wilson – TCEQ

**Topics Discussed:**

Monitoring – Anne McFarland updated Megan Wilson on monitoring. Storm monitoring has ended and routine monitoring will end in June.

Invoicing issues – SRS will work with TCEQ invoicing department to make the 40/60 split as close as possible.

Six Month Extension – Anne asked Megan about the progress on the 6 month extension of the project. The extension has been approved by EPA but TIAER has not yet received a revised contract from TCEQ. Megan assured Anne that the contract is coming along.

Data Inventory & Source Survey Reports – Anne will submit revised reports with response to TCEQ comments by the end of May.

Next Stakeholder Meeting – The possibility of hosting the next stakeholder meeting to provide an opportunity for review of reports was discussed for a late August/early September timeframe.

Start of the FY15 Project (WPP): To be discussed at next quarterly meeting.